

Master Syllabus

CAT 2501 - GPS & GIS for Engineering Technology Professionals

Division: Science, Mathematics and Engineering

Department: Civil Engineering Technology

Credit Hour Total: 2.0

Lecture Hrs: 1.0 **Lab Hrs:** 3.0

Prerequisite(s): CAT 1501

Date Revised: January 2015

Course Description:

This course covers collection, adjustment, analysis and management of geospatial data used in land development. Integration of Global Positioning Systems field collected data with Geographic Information Systems to maintain public works, cadastral and utility record keeping systems. One classroom, three lab hours per week.

General Education Outcomes:

- ▣ Critical Thinking/Problem Solving Competency
- ▣ Computer Literacy Competency
- ▣ Information Literacy Competency
- ▣ Oral Communication Competency
- ▣ Written Communication Competency

Course Outcomes:

Field Data Collection

Perform field data collection using Real Time Kinematic (RTK) and mapping GPS receivers.

Assessment Method: Behavioral observations
Performance Criteria:

70% or higher on performance checklist

Assessment Method: Locally developed exams
Performance Criteria:

70% or higher correct responses on written exams

GIS Software

Utilize personal computer with GIS software to solve and incorporate various data sets.

Assessment Method: Locally developed exams
Performance Criteria:

70% or higher correct responses on written exams

Map Projections and Datums

Identify and convert various map projections and datums.

Assessment Method: Locally developed exams
Performance Criteria:

70% or higher correct responses on written exams

Oral and Written Presentations

Prepare effective oral and written presentations derived from tabular and graphic data.

Assessment Method: Behavioral observations
Performance Criteria:

70% or higher based on a performance checklist

Assessment Method: Performance appraisals
Performance Criteria:

Score at least a "7" out of 10 based on a performance rubric

Outline:

Error propagation

Data standards

Introduction to geodesy and geomatics

Global Positioning System theory and practice

Static and real-time kinematic field data collection

Geographic Information system theory and design

